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EDITED BY HARRISON G. DYAR.

Publishes articles relating to any class of the subkingdom Arthropoda, subject to the acceptance of the Publication Committee. Original communications in this field are solicited.

BOOK NOTICE.

A monograph of the Culicidae of the World. By F. V. THEOBALD :
London, 1907. Volume IV.

After an interval of four years, Mr. Theobald appears with a fourth volume of 600 pages of his mosquito monograph, based on material received since 1903. It might have been supposed that during this interval the author would have learned something from the numerous criticisms that have been directed against his earlier volumes ; but not so. In this book he continues his excessive subdivisions, his absurd classification, and even his nomenclatorial blunders that so marred the first volumes. Mr. Theobald is not a trained naturalist, so we are told, and it now appears that he is incapable of learning. He insists that his additional material only confirms his divisions on scale characters. Naturally it does so from his point of view. He can no doubt place his specimens to his own satisfaction on these characters, since this is the only criterion he has. But does this prove anything? Can anyone else use the characters and come out the same way? Do they correspond to a natural system? Do they agree with characters founded on other structures? Are they confirmed by larval characters? We answer, no. Rightly viewed, the scale characters are of specific

value only, and any attempt to employ them for higher taxonomic groups, must result in confusion and disaster.

Mr. Theobald remarks that the larvae have "a wide range . . . in characters, not only in different stages of the same species, but in the same stage in the same species." This is not a fact. Mr. Theobald is utterly unqualified to speak on the subject, being ignorant of the first principles of larval characters, as his published figures show. He has never published an original figure of a larva that showed a diagnostic character, nor is he apparently able to apprehend them when pointed out. The phrase "not only in different stages" would imply that some of the larval differences pointed out by students of the early stages might be due to a difference of stage rather than of species. Possibly Mr. Theobald might be deceived in this way, but it is absurd to imply that any real student of the matter does not know when a larva is mature.

Mr. Theobald deserves censure for his uncandid treatment of his own faults. Other peoples synonyms are set forth in large type, but his own are either ignored, or referred to in the text inconspicuously. In the introduction he commends Professor Blanchard's book as "of especial value for correcting errors in nomenclature;" but omits to state that practically all the errors there corrected were perpetrated by himself. In a monographic work of world-wide scope and general distribution, where, unlike in a scientific journal, no reply is possible to the same readers, this sort of thing is a rank injustice. It creates the impression that other authors may make many faults, but not the author of the monograph!

He does not hesitate to steal names. Numerous manuscript names are published with descriptions, apparently without the consent of the authors, as he frequently states that he does not know whether the author in question has described the species or not. In the volume before us we find a small inserted slip headed "Errata et Addenda," on which we read of *Myzomyia rossii* Giles that it belongs to a distinct genus which *is being described* by Mr. Rothwell as *Pseudomyzomyia*. The genus, of course, will now have to be credited to Theobald, and Mr. Rothwell can only regret his misplaced confidence in having mentioned his intention before publishing.

Mr. Theobald speaks unfavorably of genera founded on male genitalia alone; justly, we think. He quotes Dr. Felt's work and Dr. Dyar's on the subject, but in a note on page 12 makes the strange

statement "the type of the genus *Grabhamia* I made *jamaicensis*." As a matter of fact he made no type; *jamaicensis* was first specified as type by Dr. Felt. Under the first species rule the type is *dorsalis*, as stated by Dr. Dyar. This Mr. Theobald has failed to comprehend.

Mr. Theobald objects to Dr. Dyar's statement that *Janthinosoma musica* and *Grabhamia jamaicensis* should fall together, adding "more totally diverse forms could not be seen." Now they are diverse only in his own opinion. These species agree in egg and larval structure and in the male genitalia. In our classification they both fall in the genus *Aedes*. In short, they agree in all essential characters, and only differ in the unessential ones on which Mr. Theobald has chosen to found his classification. A better example of its unsoundness could hardly be adduced. He refers to the placing of his *scholasticus* in the genus *Janthinosoma* by us on larval characters as an example of the faulty working of our system; but fails to note, as is fairly obvious from the context, that this was due to an erroneous determination made for us by Mr. Coquillett. We have since renamed the form.

Mr. Coquillett's classification is commended, so far as the Theobaldian characters are used, but the most valuable part of it, the treatment of the genus *Ochlerotatus*, is condemned, while Theobald himself makes no use of this old name.

Dr. Lutz's classification has been adopted, which is an improvement; it is at least orderly. Ten subfamilies are recognized, based as formerly on secondary sexual characters, venation and bending of the proboscis. The only really valuable character, the presence or absence of setæ on the metanotum, is obscured and used in a secondary manner. The curious relationships between the predacious species and their hosts are not brought out, for while *Lutzia* stands near *Culex*, and *Psorophora* near *Janthinosoma*, *Megarhinus* and its near relative *Mansonia* are widely separated. In spite of the multiplicity of genera, forms are associated in one genus which have no near affinities. One hundred and nine genera are recognized. It is true that genera do not exist in nature and are only artificial divisions; but they are supposed to be for the convenience of the student, not for his confusion and undoing. There ought to be some sort of uniformity with other groups of Diptera and other insects in general as to the scope of the division called the genus. Mr. Theobald appears to be unprepared for his work on general principles; having no knowledge of any group but mosquitoes he unduly magnifies their

trivial characters. It is probable that he cannot be brought to see the error of his ways, but will continue to overdo the subject as long as the British Museum keeps him at the work. A fifth volume is said to be in active preparation and there seems no way to avert the calamity.

In the following detailed remarks, we refer mainly to American species, as the others are unknown to us. Unfortunately the American species form but a small proportion of the whole.

The subfamily Anophelinae includes eighteen genera, of which a table is given. They are separated on scale structure, of which enough criticism has already been published. These groups do not represent subgenera even, nor any natural groups less than genera. The modifications of scale structure, while of specific value, do not follow phyletic lines, but are mainly sporadic. This is the chief objection to Theobald's classification, that it is unnatural. Under *Anopheles*, *maculipennis* Meig., *bifurcatus* L. and *nigripes* Staeg., three European species, are credited also to North America, quite wrongly we believe. *Barberi* is said to be probably a variety of *bifurcatus*, with which it really has no affinity. The species recently described by us are unnoticed. *Crucians* is included with doubt. According to his table we make it fall in *Anopheles*. Mr. Theobald's doubts about its generic position have arisen apparently from a misunderstanding of Professor Smith's descriptive term "scales." Our tropical species fall in other genera, except *eiseni* Coq., which the author has not seen. This would fall in *Myzomyia* by his tables apparently. *Myzorhynchella nigra*, new genus and species is described from Brazil and Mexico. We have it from British Guiana.

The subfamily Megarhininae which, in the Genera Insectorum, Mr. Theobald split into two subfamilies, Megarhininae and Toxorhynchitinae, is now recognized as a concrete group with the remark: "that they are closely connected a casual glance will show, yet under palpal classification some should come (*Toxorhynchites*) near *Culex*, and others (*Megarhinus*) near *Anopheles*;" Ankylorhynchae Lutz and Lynchiellina Lahille are given as synonyms — not a word of Toxorhynchitinae Theobald! Fortunately but one new species of *Megarhinus* is described, *M. chrysocephalus*, from a single male from São Paulo, Brazil. "The legs in the specimen were damaged." As the diagnosis of the species of *Megarhinus* depends largely upon the markings of the tarsi, this species will remain an empty catalogue

name. *M. herickii*, which is intended for the species previously described by us as *M. septentrionalis*, is again heralded forth as a new species, although previously described in the Entomologist. Mr. Theobald's original diagnosis was based on some remarks made by Herrick in Entomological News, and it appears that he never has had a specimen before him. In the present work the species is credited with a new, purely imaginary character, a bicolored caudal tuft. The paper published by us on the genus *Megarhinus* in September of last year and which puts the diagnosis of the species on a more tangible and concise basis is wholly ignored. Instead, hopeless confusion is created by attributing new characters to the old species. Thus *M. longipes* Theob., which was originally described from a single female with banded tarsi, is now diagnosed with "tarsals unbanded" and *M. portoricensis* von Röd., which is based on a single male without abdominal tufts, is now stated to have the "caudal tufts steel-blue and white."

The subfamily Culicinae contains 63 genera and the author remarks "some more have been added since this went to press." *Oculeomyia*, with the eyes large and fused in the mid line, and *Rachionotomyia*, with a large backwardly projecting process on the scutellum, are evidently strongly marked forms, worthy of generic rank; but the others, separated on scale and palpal characters, are weak, artificially separated groups, and are for the most part not valid genera. In the genus *Janthinosoma*, our identification of *posticata* Wied. is, we believe, correct, as Dr. Howard has examined the type and there is nothing in Wiedemann's original description to contradict our understanding of the name. The confusion is entirely due to Mr. Theobald's misapprehension of the term "tarsus." The new name *coquilletti* Theob. will stand as a synonym of *posticata*. The name *terminalis* Coq. will have to stand for the form misidentified as *posticata* by Theobald. Coquillett's original description of *varipes* is quoted, but our correction from a reëxamination of the type is not noticed. The new name *sayi* is proposed for *musica* Say (not Leach). We had previously made the same substitution. The variety *jamaicensis*, described as new, was previously named *echinata* by Dr. Grabham.

Under *Desvoidea*, a whole page is occupied with photographs of the head and anal end of the larva of *D. obturbans*. It is unfortunate that every character of value is completely obscured in the mount, and the illustrations are worthless. Under *Stegomyia*, Theobald recognizes

that the name *fasciata* Fab. cannot be used, but he retains the name nevertheless "to avoid endless confusion." It appears to us that this only increases the confusion, since all recent writers have abandoned the name *fasciata*. A figure is given labeled "male genitalia of *Stegomyia simpsoni* Theobald." The side pieces and clasp filament are shown and two basal hairs. Are we to infer that this species is devoid of harpes, harpagones and unci? If so, we wonder it has not been made the basis of a subfamily.

The new genus *Pseudohowardina* is proposed for our *trivittata* Coq., on scale characters entirely.

A figure of the male genitalia of *Culiciomyia inornata* Theob. is an unintelligible muddle. We see a clasp filament on the left, on the right an unattached piece which looks as much like a distorted set of marginal processes of the side piece of a *Culex* as anything. *Culiciomyia annulata* Theob. is likewise figured and almost equally unintelligible. It is a pity that the structures were not better drawn, as they are apparently peculiar.

The description of *Gnophodeomyia inornata* Theob. in the Journal of Economic Biology had escaped us; but specimens received from Dr. Rowland appear to be an ordinary *Culex*. The new genus *Protomacleaya* is made for our *triseriatus* Say. A portion of the male genitalia of *Pecomyia maculata* Theob. are shown, just enough to excite our interest, without conveying any valuable information. Again these parts of *Pseudotheobaldia niveitaniata* Theob. are figured with the essential parts slurred over by the artist, so as to be unrecognizable. Of *Grabhamia willcocksii* Theob. more is shown, but not all. Apparently none of Mr. Theobald's preparations are properly made, except perhaps that of *Culicada waterhousei* Theob. which is almost recognizable.

The genus *Culicada* Felt is used for 24 species. Mr. Theobald says "the type of this genus should be Meigen's *cantans*, not my *Culex canadensis*." But as Felt specified *canadensis* as the type, the remark is meaningless, except as illustrating the author's ignorance of all rules of nomenclature. *Subcantans*, *fitchii* and *abfitchii* are separated by the markings on the thorax, and large figures are given of them. This is all very well for single specimens, but with long series of each species before us we have been unable to determine any constant diagnostic characters between the three species. *Onondagensis* Felt is included and called "evidently a very distinct species," yet

he has failed to observe that it is a synonym of *curriei*, which he places in *Grabhamia*. *C. trichurus* Dyar and *C. cinereoborealis* Felt are treated separately, but are really one species. Under *C. punctor*, we are told "the American observers take a wholly different insect to be *punctor* to that placed in the Museum collection;" but not a character is given to enable us to correct our error, if indeed Mr. Theobald means to imply that we are in error, which is not at all clear from the peculiar wording. *Punctor* is even carefully omitted from the table, which, by the way, is stated to be "complete."

Culiseta Felt is used, although it is synonymous with *Theobaldia*; but Mr. Theobald has "been unable to work out the two included species," from lack of time, we suppose.

Culex, as now restricted, has very nearly the same extent as defined by us, the genitalia being referred to. Some discordant elements are included, such as *atropalpus* Coq., *sylvestris* Theob., *niveitarsis* Coq. (which may be only an aberration of *canadensis*, as Miss Ludlow has suggested to us), *tortilis* Theob. and *inconspicuus* Grossb. for most of which there is no excuse, as sufficient data have been published to exclude these species from *Culex* if Mr. Theobald had chosen to notice the literature. He states that the genitalia of *sylvestris* "are no more varied than one finds in other closely related species of *Culex*," which is certainly a remarkable statement, as Felt has founded a genus on them. They are in reality very aberrant. *Culex subfuscus* is founded on a single male. Anyone familiar with the species of *Culex*, their very close affinity and the diversity of the sexes will appreciate the impossibility of associating the proper female with this form. *Culex similis*, which was originally founded on females from Jamaica, now receives a supplementary description of a male from British Guiana. We feel sure that this is really not the same species, for in our experience, with the exception of one or two semi-domestic species, those found in the West India Islands are distinct from those of the mainland. *Culex quasiselector* is merely a maculate form of *selector* and not a new species. A similar variation occurs in *C. restuans* Theob. and again in *C. territans* Walk.

Protoculex Felt is used for *serratus*, *dupreei* and a new species, *quasiselector*, the latter obviously a synonym of *pertinax* Grabham.

The appendages of the male antennæ in *Lophocerotomyia* are most curious, but it is very doubtful if the genus is a good one, as these characters are not correspondingly developed in the female.

Teniorhynchus is somewhat restricted and, as it stands, seems to represent a natural group, at least as far as the species known to us are concerned. The name, however, is obviously wrong according to the canons of nomenclature. The type is *teniorhynchus* Wied., by the rule of tautonomy, and the question of the identification of Arribalzaga's specimens is outside the matter. The name rightly should replace *Culicelsa* as used by Theobald.

Chrysoconops Goeldi is used for nine species, of which *fulvus* Wied. is the only one known to us. This has been considered a *Psorophora* by Mr. Coquillett, from the single specimen which has outstanding scales on the legs. This character, however, is entirely without value in generic diagnosis, and we agree with Mr. Theobald that *fulvus* is not a *Psorophora*. It is, in our opinion, an *Aedes* near *bimaculatus* Coq., and the genus *Chrysoconops* should be placed as a synonym of *Aedes*.

The *Uranotæniinæ* (credited to Miss Mitchell instead of Lahille, 1904!) are recognized as a subfamily, with the definition "first fork-cell is *very small*, always smaller than the second posterior cell." Nevertheless, in the table *Minomyia* Theob. is included with "first fork-cell nearly as large as the second posterior cell," which begins to cast doubt on the subfamily character, and finally this is completely vitiated by the inclusion of *Anisocheleomyia* (?) *albitarsis* Ludlow with "first sub-marginal cell nearly a half longer . . . than the second posterior cell." That is, in order to find a species by Theobald's book, we must look in a subfamily and genus from which, on his own definitions and tables it is positively excluded!

We are unable to distinguish *Uranotænia minuta* Theob. from the previously described *U. lowii* Theob., nor are specimens before us from Georgetown, British Guiana (the type locality), which have been kindly communicated to us by Dr. Rowland, to be distinguished. Probably Mr. Theobald has "forgotten" that he had already described the species, and so gave us a second name.

Lepidoplatys Coq. is used for *squamiger* Coq. and *sylvicola* Grossb. (rightly *grossbecki* D. & K.), but the two are not separated, the description being taken from adults supplied by Dr. Felt. We might judge what they were by the locality, but this is not mentioned. *Squamiger* breeds in salt tide-water on the coast of southern California, while *grossbecki* inhabits woodland pools in the Atlantic states. The larvæ of both are typical *Aedes* allied to *canadensis*. A separate genus for these species is totally unnecessary.

Culex melanurus Coq. is referred to *Melanoconion*, and Mr. Coquillett is scolded for not placing it there originally. As a matter of fact, the genus *Melanoconion* had not been proposed when Coquillett published his *Culex melanurus*, and in his later work he did place it in *Melanoconion*, long before Mr. Theobald did so. This appears like a wilful misrepresentation. *M. annulipes* from Jamaica is described as new. The description is unfortunately inadequate for recognition and we are unable to place the species in our tables.

The genus *Pneumaculex* Dyar is used for *signifer*, and the author exhibits again his ignorance of the rules of nomenclature by calling the genus a *nomen nudum*. It is true that no descriptive matter that would enable Mr. Theobald to place the genus in his scheme of scale classification was given, but other characters were given and a type was specified. The genus was therefore properly established. To be consistent Mr. Theobald should add his *nomen nudum* label to many other genera, such as *Culex* Linnæus. But our author is never consistent, nor has he the judicial mind that will enable him to separate a scientific subject from personal preferences. The work of persons from whom he has had favors or commendation is referred to leniently or frequently quoted, while that of persons who have criticized his work is harshly spoken of or ignored. This can only result in serious detraction from the authority and scientific value of the volumes before us.

Under *Aedes*, a new species, *nigrescens*, is described. We should say that it was properly a *Culex* with short palpi in the male, like other species we are familiar with; but as only the tip of the genitalia is figured, the most important organs remain unrevealed and we cannot feel certain.

Hæmagogus equinus Theob. is now placed in *Cacomyia* Coq., and the error of the original description is repeated, namely the statement that the claws are simple. They are really toothed, as we know from an examination of Dr. Grabham's other specimen, which the doctor has kindly loaned us, and from an examination of Theobald's type, which has been made by Dr. Howard.

Under the clumsy, redundant term Metanototrichæ-Heteropalpæ, the distinct group Sabethinæ is at last recognized. We have repeatedly insisted on this group as the only one deserving subfamily rank, but our remarks are unnoticed by Mr. Theobald, probably because too recent. His book, in the matter of detail, is fully a year behind its

date of publication. The author has been overwhelmed by his wealth of material and the rapidity of the pace that has been set in the study of these insects. We are of the opinion that the name *Sabethinæ* should obtain for this group, as founded on the oldest included genus.

Lutz's table of genera is translated from the Portuguese and copied, with sundry mutilations, which are not pointed out. Dr. Lutz is able to prepare a table in proper dichotomous form, but the translation would not lead one to think so. On page 593 a figure is copied from Goeldi which purports to be "Siphon of *Trichoprosopon nivipes* Theobald." That this really represents the larva of *Limatus durhami* Theob., probably makes no difference to our author, since apparently all larvæ look alike to him. It might, however, mislead some reader who was not acquainted with Dr. Goeldi's work.

Theobald retains *Trichoprosopon* (not *Trichoprosopus* Macq.) instead of *Joblotia* Blanchard, regarding the difference in termination as sufficient distinction. We do not concur in this view, the names meaning the same and being so similar as to cause confusion. Still this is a matter subject to opinion; but not so the use of *Joblotia* for a distinct genus, which is wholly unwarranted. That genus should be known as *Lesticocampa* D. & K.

The genera *Philodendromyia* and *Polylepidomyia* are placed here; but as both are stated to have the metanotum nude, this position is incomprehensible, unless indeed a deliberate attempt has been made to confuse the reader.

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FREDERICK KNAB.

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July 30, 1907.

NOTICE FROM THE NEWARK ENTOMOLOGICAL SOCIETY.

The headquarters of the Newark Entomological Society on the fourth floor of the Newark Turn Hall were completely destroyed by fire in the early morning of June 3, 1907. The conflagration demolished not only the entire building, but resulted in the loss of three lives.

The property of the Society consisted of a forty drawer cabinet containing one thousand specimens of Lepidoptera and two thousand